

AMIR HOSSEIN BEHRAVESH, Ph.D., P.Eng.

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EDUCATION

- 1993 -1998 **Ph.D.**, University of Toronto, Mechanical and Industrial Engineering, CANADA
Major: Mechanical Engineering, Manufacturing
Thesis Topic: Extrusion Processing of Low-Density Microcellular Foams
- 1991-1993 **M.Sc.**, University of New Brunswick, Mechanical Engineering, CANADA
Major: Mechanical Engineering, Manufacturing and Material Science
Thesis Topic: Mechanical and Microstructural Properties of Low Carbon Equivalent Austempered Ductile Iron
- 1984-1989 **B.Sc.**, Sharif University of Technology, Mechanical Engineering, IRAN
Major: Mechanical Engineering
Project Topic: Road Vehicle Dynamics of Tandem-Axle Road Trucks
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OCCUPATION

- 1998-present **(Full) Professor:** Manufacturing and Production Group, Faculty of Mechanical Engineering, Tarbiat Modares University, Tehran, Iran

Head of Production and Manufacturing Group: 2000-2008
- 2008-2009 **Visiting professor**, University of Toronto (Professor Chul B. Park), Canada
2009-2010 **Visiting professor**, UOIT (Professor Ghaus Rizvi), Canada
2014-2016 **Researcher**, University of Toronto (Professor Mohini Sain), the Center for Biocomposites and Biomaterials Processing (CBBP), Canada
2018 **Visiting Professor**, University of Toronto (Professor Mohini Sain), CBBP, Canada: (Sept. 2018 –Oct. 2018)
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ACTIVITY INTERESTS

Additive Manufacturing (AM): AM is the main topic of my research interests that includes both material and manufacturing developments. I started working on producing high-performance 3D-parts via fused deposition modeling (FDM) where we successfully developed a method to produce continuous fiber reinforced composites, with flexible control on the fiber volume content (here glass fiber, but not limited to); we called it In-Melt Simultaneous Impregnation. The aim was to tackle the inherent weakness of the 3D-printed parts in FDM; outstanding increase in mechanical properties was achieved. Another subject is to develop polymer-metal composites, where the goal is to produce composites that can be converted to a homogenous non-polymeric product, e.g., a metallic part. Tissue Engineering, assisted with Additive Manufacturing, is the major multidisciplinary subject of my research interest for which I

proposed and established a “core research group,” entitled “Add-Bio Manufacture,” and secured a comparatively notable grant. I am heading this group of high expertise including faculty members and graduate students from the departments of biology, chemistry and medicine TMU, where we explore innovative methods to produce scaffolds via AM method to mimic human (hard and soft) tissues, followed by in-vitro and in-vivo evaluations. Specifically, we intend to utilize the unique capability of Digital Light Processing (DLP) to print both soft and hard tissues simultaneously. I formally founded and equipped a laboratory, “Additive Manufacturing Laboratory” at TMU, where a number of graduate students (MSc and Ph.D.) are conducting their researches in this area. Along with the research work in AM, I teach Additive Manufacturing course, with a unique preparation of selected materials, and had it formally included in the school curriculum.

Processing and Manufacturing of Plastic Materials, Composites and Foams: Plastics and their composites play the key role in the production of parts in various sectors. Low weight, and high insulating properties are the examples of characteristics of this category of materials. However, it is their processability that makes them so attractive to designer and manufacturers.

I have conducted various researches in extrusion and injection molding processes including: extrusion of plastic composites (short and long fibers), extrusion die design and manufacturing with main focus on balancing, injection molding of plastic foams and composites, shrinkage study in injected molded parts. A very recent project I have been working on is to implement the process of continuous (glass and knauf) fiber reinforced thermoplastics which is a very attractive subject for industries. Conducted research works under my supervision were manufacturing and processing of advanced composites, microcellular foams, fluid assisted injection molding, and visualization of polymer processing, nano-composites.

Foaming process can be performed in extrusion and injection molding to obtain low-weight final products with unique properties such as thermal insulation and impact absorption. Specifically, microcellular foams are characterized by very small cells in the order of 10 micron. This unique structure will impart higher mechanical and physical properties. My main interest is to further investigate the mechanical and physical properties of these materials produced in injection molding. In injection molding process, achieving a sound microcellular structure is highly challenging. The relationship between microstructural and mechanical properties are also of my research interest. During my PhD study at University of Toronto and in continue till present, I have been involved and gain experiences in foaming technology both in extrusion and injection molding. More emphasize were on promoting microcellular foams using various materials including PS, PE, PP, PVC and PVDF. I am also currently collaborating in an industrially driven project on foam processing of specially vinyl modification compound, and advanced materials for insulation application at CBBP, University of Toronto.

Advanced and Green Materials: Global awareness towards preserving the environment and reducing consumption of fossil resources have expedited research works towards development and processing of the (biodegradable) green materials (e.g. Wood Plastic Composites, WPCs). My interests are in product development and die design for WPCs. Extrusion process and injection molding are the principal methods utilized for production of these materials. Due to their properties, they demand new modifications and approaches in processing. The new development in my research work is to incorporate additional reinforcing component (continuous fibers such as glass and Kenaf) in order to dramatically enhance final mechanical properties in order to make them suitable for load bearing application (their current point of weakness); the outcome of this work has been attractive to the relevant industries and

Smart Materials (Shape Memory): in this research work, the purpose is to manufacture shape memory plastics (SMPs) using blends of polyurethane and PLA (polylactide: biodegradable plastics), and nanocellulose for medical application. Appropriate blending ratio and process, shaping and training are the principal steps in their producing. In continue, the objective is to produce SMPs parts using additive manufacturing, with the developed blends of PLA-PU. I have been teaching courses in Shape Memory Alloys and have been involved in the characterization and application of these materials.

SELECTED GRANT AWARDED RESEARCH PROJECTS (PRINCIPLE APPLICANT AND INVESTIGATOR)

Additive Manufacturing Assisted Tissue Engineering (Core Research Group)	Ministry of Higher Education and Vice-Chancellor of Research & Technology, Tarbiat Modares, Iran	2018-present
Design and Modification of An Extrusion System for Production of Fine-Cell High Expansion PE Foams	Iranian National Science Foundation, Tehran	2015-2017
Analysis of Materials and Production of Pole Circuit Breaker System (Metro)	Metro (Tehran Transportation Co.), Tehran – in Cooperation with Sharif University of Technology, Tehran	2013-2014
An Innovative Method of Manufacturing Injected Molded Wax Models for Gas Turbine Blade	Management of Power Plant Projects Co. (MAPNA), Iran	2011-2012
Microcellular Foam Extrusion Coating of Communication Cables	Ministry of Industries and Mines and Sabba Engineering Co., Iran	2006-2008
Design, Analysis and Manufacture of a Plastic Battery Tray for Auto Peugeot in Substitution for Metallic Tray	Iran Khodro Co. (Automotive Industry), Iran	2007-2009
Design, Optimization and Manufacture of Wood- Plastic Composite Pallets	Research Support Award, Office of Research Affairs, Tarbiat Modares University, Iran	2005-2007
Implementation of a Fluid Assisted Injection Molding System to produce Industrial Parts	Ministry of Industries and Mines, Iran	2004-2006
Design and Manufacture and Implementation of Microcellular Foam Injection System	Industries Development and Renovation Organization (IDRO), Iran	2003-2005
Design and Manufacture and Implementation of Twin Extruder for Wood-Fiber/Polypropylene Products	Research Support Award, Office of Research Affairs, Tarbiat Modares University, Iran	2002
Design, Analysis and Manufacture of Polyurethane Sandwich Panels with Plastic and Aluminum Skins	Saaye Saz Imen CO., Iran	1999

TAUGHT COURSES

Additive Manufacturing (3D Printing)

Advanced Plastic Processing

Composites

Smart Materials

Advanced Engineering Mathematics

Metal Forming

Research Method

SUPERVISED GRADUATE STUDENTS

- Rezai, M. Additive Manufacturing of Metallic Products in Fused Deposition Modelling Process (3D Printing), (**Ph.D.**, Started 2017).
- Salamat, M. Characterization of Polymer-Metal Composites for Additive Manufacturing of Metallic Products in FDM Process (**M.Sc.**, Started 2017).
- Hedayati, K. Manufacture of Resorbable Scaffold reinforced with Continuous Fibers (**M.Sc.**, Started 2017).
- Ahmadi, S. Additive Manufacturing Assisted Tissue Engineering, (**Ph.D.**, Started 2017).
- Abidaryan, S. Additive Manufacturing of Shape Memory PLA-PU blends for Medical Applications-4D printing (**M.Sc.**, Started 2017)
- Bagheri, A. Simultaneous Manufacture of Soft and Hard scaffolds in an Additive Manufacturing Process: DLP process, (**Ph.D.**, Started 2014).
- Nabipour, M. Additive Manufacture of composite parts in FDM process, (2014-2016).
- Akhundi, B. Additive Manufacturing: 3-D printing of Continuous Fiber Plastic Parts in FDM process, (**Ph.D.**, 2013-2018)
- Hamrang, Sh. Visualization of Gas Assisted Injection Molding of a Multi-cavities Mold, (**M.Sc.**, 2012-2014)
- Asadi, A. Extrusion of Continuous Natural Fiber Reinforced Wood Plastic Composites, (**M.Sc.**, 2012-2014)
- Taheri, H.: Design and Manufacture of a Modular Extrusion Die for Production of Continuous Glass Fiber Reinforced Wood Plastic Composites, (**M.Sc.**, 2009-2011)
- Kargar, M.: Extrusion Foaming of Continuous Fiber Reinforced Wood Plastic Composites, (**M.Sc.**, 2009-2011)
- Sedghi, V.: Experimental Study on the effect of Pre-Tension on Mechanical Strength of continuous glass Fiber Reinforced WPC in Injection Molding Process, (**M.Sc.**, 2011-2014)
- Amiri, M.: Study of Fracture Behavior in Wood Plastic Compositied using CDM, (**Ph.D.**, Started 2011)
- Barmuz, M.: Manufacture and Characterization of Smart Polymers, (**Ph.D.**, Started 2012)
- Ahmadzai, A., Experimental and Theoretical Study on Expansion Behavior of Injection Foamed Parts, (**Ph.D.**, 2008-2014)
- Shahi, P.: Effect of Blending on the Production of Polyethylene Foams, (**Ph.D.**, Started 2010)
- Zolfaghari, A. Experimental and Theoretical Study on Production of Hybrid Long Fiber Reinforced WPC in Extrusion Process, (**Ph.D.**, 2008-2013).
- Alavi, F.: Micromechanical Behavior of Failure in Particle reinforced Plastic Composites, (**Ph.D.**, 2008-

- 2013)
- Ahmadi, M. Gas Assisted Injection Molding of Wood Plastic Composites, (**M.Sc.**, 2009-2012)
- Adli, A. Micromechanics Modeling of Yonge's Modulus and Strength of Wood Plastic Composites, (**M.Sc.**, 2009-2012)
- TabkhPaz, M. Effect of Melt Flow Index of Polymeric Matrix on the Recyclability of Extruded Wood Plastic Composites, (**M.Sc.**, 2008-2012)
- Abdollahi, A. Experimental Study of process-ability of the Injection molded Rubber-Reinforced Plastic Composites, (**M.Sc.**, 2008-2012)
- Daryabari, Y. Injection Foam processing of Wood-Plastic Composites, (**M.Sc.**, 2008-2012)
- Soury, E.; Experimental and Theoretical Study on Flow instability in Extrusion of WPC products, (**Ph.D.**, 2007-2012)
- Nazari, M.; Foam Extrusion Coating of Communication Cables, (**Ph.D.**, 2006-2010)
- Shakoori, E. Theoretical Investigation on Die pressure prediction and Effect of Die Pressure on Mechanical Properties of Extruded Wood-Plastic Composites, (**M.Sc.**, 2007-2009)
- Shahi, P.: Effect of Process Design on Mechanical Properties of Extruded Wood- Plastic Composite Products, (**M.Sc.**, 2007-2010)
- Haghshenas, M. Foam Extrusion of Wood-Plastic Composites to Optimize Weight and Cost, (**M.Sc.**, 2007-2010)
- Mahmoodi, M. Visualization and Theoretical analysis of Bubble Dynamics in Filling Stage of Injection Foaming Process, (**M.Sc.**, 2006-2008)
- Zolfaghari, A. Experimental and Theoretical Study on Die Balancing in Extrusion of WPC Profiles (**M.Sc.**, 2006-2008, Continued to Ph.D.)
- Soury, E. Design, Optimization, and Manufacture of Wood- Plastic Composite Pallets (MSc, 2005-2007), continued to Ph.D.)
- Ahmadzai, A. Study on Effect of Processing Parameters on Shaping of Water Assisted Injection Molded Parts -(MSc, 2005-2007, continued to Ph.D.)
- Rezavand, A. Experimental Study on Microcellular Foams in Injection Molding Process, (**Ph.D.**, 2004-2010).
- Azdest, T. Numerical Simulation of Constraint Shrinkage in Injection Molding Parts, (**Ph.D.**, 2001-2006).
- Jafarian, N. Injection molding of fine-wood plastic composites, (**M.Sc.**, 2004-2006)
- Fathi, S. Visualization of the Melt Flow in the Plastic Injection Molding Process using Direct Observation Method, (**M.Sc.**, 2004-2006)
- Ravan, A.; Implementation of a Water Assisted Injection Molding System, (**M.Sc.**, 2003-2005)
- Rajabpoor, M. Design, Manufacture, and Implementation of A Microcellular Foam Injection Molding System, (**M.Sc.**, 2003-2005).
- Safarian, A. Experimental Study on Metal Injection Molding Process, (**M.Sc.**, 2003-2005).
- Motabar, H. Experimental Study on Shrinkage of Injected Molded Parts, (**M.Sc.**, 2002-2004)
- Khamedi, R. Design and Manufacture of Calibration Unit for WPC Profile, (**M.Sc.** 2002-2004).
- Kazemi, K. Mechanical and Microstructural Properties of Microcellular Foams: ABS and its Composites, (**M.Sc.**, 2002-2004).
- Rezavand, A. Investigating Effective Processing Parameters on Dimensional Stability of Injected Wax Patterns of Gas Turbine Blades, (**M.Sc.**, 2002- 2004, continued to Ph.D.)
- Rasoolian, M. Optimization of Foam Structure in Injected Molded Bear-Loading Pellets, (**M.Sc.**, 2001, 2003)
- Bahari, B. Design and Construction of Twin Extruder for Wood-Fiber/Polypropylene Extruded Sheet, (**M.Sc.**, 2001-2003).
- Farajpour, M. Design, Manufacture, and Optimization of Extrusion Die with I-Profile, (**M.Sc.**, 2000-2002)
- Zohdi, A. Effective Parameters in Injection Molding of PP/Wood-Fiber Composites, (**M.Sc.**, 2000-2002)
- Moallemi, M. Warpage Analysis of Injected Molded Parts, (**M.Sc.**, 2000-2002)
- Habibzadeh, N. Design and Manufacturing of Gas Nozzle in Gas Assisted Injection Moulding Process, (**M.Sc.**)
- Alaai, F., Gas Assisted Injection Molding: design and Process, (**M.Sc.**, 1999-2001)
- Naazeri, H., Design of a Software Program for Geometric Tolerance in CAD Systems, (**M.Sc.**, 1998,2000)
- Paakd, S. Design and Manufacture of a Semi-Continuous Casting Process for Brass Rod Production, (**M.Sc.**, 1998-2000)
- Akbarian, A. Design and Manufacture of an Extrusion System for Soya Oil Extraction, (**M.Sc.**, 1997,1999)

INDUSTRIAL EXPERIENCES

2001-2005	Deputy Managing Director: intensive involvement in design, manufacturing and sales for manufacturing companies, Dandeh Masooreh Co. , Tehran, Iran (Factory: Ghazvin, Iran)
2006	Senior Consultant: Wood Plastic Composite, Feasibility Study, 22 Bahman Co., Tehran Iran. (Factory: Behshahr, Golestan, Iran)
20013-2014	Deputy Managing Director: Wood Plastic Composite Manufacture, Tooska Co., Tehran, Iran (Factory: Bandar Gaz, Golestan, Iran)
2015-present	Managing Director and shareholder, Taharok Fannavar Robotics, a start-up company active in manufacture of rehabilitation systems and robotics, Tehran, Iran

PUBLICATIONS

Book Chapter:

B.1) Alavi, F., Behraves, A.H., and Mirzaei, M., "Fracture Mechanism of Wood-Plastic Composites (WPCS): Observation and Analysis," In: *Lignocellulosic Polymer Composites*, Kumar Takhur, V., Wiley, Scrivener, MA, pp. 385-415 (2015)

B.2) Park, C.B., Behraves, A.H., and Venter, R.D., "Chapter 8- A Strategy for Suppression of Cell Coalescence in the Extrusion of Microcellular HIPS Foams," In: *Foam Book: Recent Advances in Polymeric Foam Science and Technology*, Khemani, K., ed., ACS, Washington, pp. 115-129 (1996).

Journal Publications (as the Corresponding Author):

J.68) Mohsen, and Amir Hossein Behraves, "The Role Of Foaming Process On Shape Memory Behavior Of Polylactic Acid-Thermoplastic Polyurethane-Nano Cellulose Bio-nanocomposites, *Journal of the Mechanical Behavior of Biomedical Materials*, **91**, pp. 266-277 (2019).

J.67) Akhundi, B., Behraves, A.H., and Bagheri Saed, A., "Effect of Filling Pattern on the Tensile and Flexural Mechanical Properties of FDM 3D Printed Products, *Experimental Mechanics*, 10.1007/s11340-018-00467-y (2019).

J.66) Akhundi, B., Behraves, A.H., and Bagheri Saed, A., "Improving Mechanical Properties of Continuous fiber-reinforced thermoplastic Composites produced by FDM 3D Printer," *Journal of Reinforced Plastics and Composites*, **38**(3), pp. 99-116 (2019).

J.65) Barmouz, Mohsen, and Amir Hossein Behraves, "Foaming and thermal characteristics of bio-based polylactic acid-thermoplastic polyurethane blends," *Journal of Cellular Plastics*, **54**(6), pp. 931-

955 (2018).

J.64) Mohammad Taheri, Hossein, Amir Hossein Behravesh, and Mahmoud Kargar, "A modular extrusion die design to produce continuous glass fibers reinforced PVC-wood composite profiles," *Polymer Composites*, **39**, 2268-2276 (2018).

J.63) Barmouz, Mohsen, and Amir Hossein Behravesh. "Shape Memory Behaviors in Cylindrical Shell PLA/TPU-Cellulose Nanofiber Bio-Nanocomposites: Analytical and Experimental Assessment," *Composites Part A: Applied Science and Manufacturing*, **101**, pp. 160-172 (2017).

J.62) Barmouz, Mohsen, and Amir Hossein Behravesh. "Statistical and experimental investigation on low density microcellular foaming of PLA-TPU/Cellulose nano-fiber bio-nanocomposites." *Polymer Testing*, **61**, pp. 300-313 (2017).

J.61) M. Nabipour, A.H. Behravesh, B. Akhundi, "Effect of Printing Parameters on Mechanical Strength of Polymer-Metal Composites Printed via FDM 3D Printer," *Modares Mechanical Engineering Journal*, **17**(1), pp. 145-150 (2017).

J.60) Siah Sarani, A., A. H. Behravesh, and M. Barmouz. "Compressive shape memory behavior of spring-shaped polylactic acid alloy type." *Journal of Applied Polymer Science* **134**(30), APP45115,(2017).

J.59) Shahi, Peyman, et al. "Morphological Analysis of Foamed HDPE/LLDPE Blends by X-ray Micro-Tomography: Effect of Blending, Mixing Intensity and Foaming Temperature." *Cellular Polymers* **36**(5), p. 221, (2017).

J.58) P. Shahi, A.H. Behravesh, , A. Haghtalab, G. Rizvi, F. "An Experimental Study on Foaming of Linear Low-density Polyethylene/high-density Polyethylene Blends," *Journal of Cellular Plastics*, **53**(1), pp. 83-105 (2017)

J.57) P. Shahi, A.H. Behravesh, , A. Haghtalab, G. Rizvi, R. Pop-Iliev, F. "Effect of Mixing Intensity on Foaming Behavior of LLDPE/HDPE Blends in Thermal Induced Batch Process," *Polymer Composites*, Vol. 55, 9 , pp. 949-964 (2016)

J.56) M. Barmouz, A.H. Behravesh, F. Reshadi, N. Soltani, "Assessment of defect detection in wood-plastic composites via shearography method ," *Journal of Thermoplastic Composite Materials*, **Vol. 29**, 1 , pp. 28-36 (2016).

J.55) M. Kargar, A.H. Behravesh, H.M. Taheri, "Experimental Investigation on Mechanical Properties of Extruded Foamed PVC-wood Composites Reinforced with Continuous Glass Fibers," *Polymer Composites*, **Vol. 37**, 6 , pp. 1674-1680 (2016)

J.54) F. Alavi, A.H. Behravesh, and M. Mirzaei, "Effect of temperature on the fracture mechanism of wood-plastic composites in situ," *Journal of Engineering, Journal of Thermoplastic Composite Materials*, **Vol. 29**, 1 , pp. 3-15 (2016)

J.53) F. Alavi, A.H. Behravesh, and M. Mirzaei, Mixed-mode cohesive zone modeling and damage prediction of irregular-shaped interfaces in wood-plastic composites, *Composite Interface*, **Vol. 22**, 7, pp. 651-662 (2015)

- J.52) A. Zolfaghari, A. H. Behraves, P. Shahi, "Comparison of Mechanical Properties of Wood–Plastic Composites Reinforced with Continuous and non-Continuous Glass Fibers," *Journal of Thermoplastic Composite Materials*, **Vol. 28**, 6 , pp. 791-805 (2015).
- J.51) A. Ahmadzai and A.H. Behraves, , M. Tabkhpaz Sarabi, P. Shahi "Visualization of foaming phenomena in thermoplastic injection molding process," *Journal of Cellular Plastics*, **Vol. 50**, 3 , pp. 279-300 (2014).
- J.50) Majid Tabkhpaz Sarabi, Amir Hossein Behraves, Peyman Shahi and Yasser Daryabari, "Effect of Polymeric Matrix Melt Flow Index in Reprocessing Extruded Wood-Plastic Composites", *Journal of Thermoplastic Composite Materials*, **Vol. 27**, 7, pp. 881-894 (2014).
- J.49) A. Ahmadzai and A.H. Behraves, "Bulk Density Reduction of Injection Molded Thermoplastic Foams via a Mold Design Approach," *Cellular Polymers*, **Vol. 30**, 1 , pp. 21-42 (2014).
- J.48) A. Ahmadzai and A.H. Behraves, "A Novel Approach in Mold Design in Regards to Weight Reduction of Foam Injection Molded Parts," *Cellular Polymers*, **Vol. 5**, 32 , pp. 279-304 (2013).
- J.47) E. Soury, A.H. Behraves, N.J. Jam, A. Haghtalab, " An Experimental Investigation on Surface Quality and Water Absorption of Extruded Wood-Plastic Composite, *Journal of Thermoplastic Composite Materials*, **Vol. 26**, No. 5, pp. 680-698 (2013).
- J.46) M.T. Sarabi, A. H. Behraves, P. Shahi, A. Zolfaghari, "Procedure Effect on the Physical and Mechanical Properties of the Extruded Wood Plastic Composites", *Polymer Composites*, **Vol. 34**, Issue 8, pp. 1349-1356 (2013).
- J.45) A. Zolfaghari, A. H. Behraves, A. Adli , "Continuous Glass Fiber Reinforced Wood Plastic Composite in Extrusion Process: Mechanical Properties," *Materials and Design*, **Vol. 51**, 4 , pp. 701-708 (2013).
- J.44) F. Alavi, A.H. Behraves, and M. Mirzaei, "*In-situ* Observation of Fracture Mechanism of Wood–Plastic Composites in Tension," *Composite Interfaces*, **Vol. 20**, Issue 3, Special issue: Advanced Polymeric Materials, (2013).
- J.43) A. Zolfaghari, A. H. Behraves, A. Adli and M. Tabkhpaz Sarabi, "Continuous Glass Fiber Reinforced Wood Plastic Composite in Extrusion Process: Feasibility and Processing," *Journal of Reinforced Plastics and Composites*, **Vol. 32**, 1 , pp. 52-60 (2013).
- J.42) E. Soury, A.H. Behraves, G.M. Rizvi, N.J. Jam, "Rheological Investigation of Wood-Polypropylene Composites in Rotational Plate Rheometer," *Journal of Polymers and the Environment*, **Vol. 20**, 4 , pp. 998-1006 (2012).
- J.41) M. Golzar, N.J. Jam, A.H. Behraves,"Mathematical and Experimental Study on Flow of Wood Plastic Composite to Acquire its Constitutive Equation," *Journal of Reinforced Plastics and Composites*, **Vol. 31**, 11, pp. 749-75 (2012).
- J.40) P. Shahi, A.H. Behraves, S.Y. Daryabari, M. Lotfi, "Experimental Investigation on Reprocessing of Extruded Wood Flour/HDPE Composites," *Polymer Composites*, **Vol. 33**, 5 , pp. 753-763(2012)

- J.39) M.T. Sarabi, A.H. Behraves, P. Shahi, E. Soury, "Reprocessing of Extruded Wood-Plastic Composites; Mechanical Properties," *Journal of Biobased Materials and Bioenergy*, **Vol. 6**, 2, pp. 221-229 (2012)
- J.38) E. Soury, A.H. Behraves, N.J. Jam, A. Haghtalab, "An Experimental Investigation on Surface Quality Extruded Wood-Polypropylene Composite," *Advanced Materials Research*, **Vol. 428**, pp. 89-93(2012).
- J.37) A. Ahmadzai and A.H. Behraves, "Effect of Processing Parameters on Water Penetration in Water Assisted Injection Molding of ABS" *Journal of Polimery*, **Vol. 56**, 3, pp. 232-239(2011).
- J.36) A Rezai, A.H. Behraves, M. Bakhshi, "Design and Optimization of a Multiple-Thickness Profile Extrusion Die with a Cross Flow" *Journal of Polym. Eng. Sci.*, **Vol. 50**, 12, pp. 2417-2424 (2010).
- J.35) A.H. Behraves, A. Zohdi, E. Soury, "Experimental Investigation on Injection Molding of Wood-Plastics Composites" *Journal of Reinforced Plastics and Composites*, **Vol. 29**, pp. 456 – 465 (2010).
- J.34) A. Zolfaghari, A.H. Behraves, E. Shakouri, E. Soury "Flow Balancing in Die Design of Wood Flour/HDPE Composite Extrusion Profiles with Consideration of Rheological Effect" *Journal of Polym. Eng. Sci.*, **Vol. 50**, Issue 3, pp. 543-549 (2010)
- J.33) A. H. Behraves, E. Shakouri, A. Zolfaghari, M. Golzar "Theoretical and Experimental Study on Die Pressure Prediction in Extrusion of Wood Plastic Composite" *Journal of Composite Materials.*, **Vol. 44**, 11, pp. 1293-1304 (2010)
- J.32) M. Mahmoodi, A. H. Behraves, S. A. Mohammad Rezavand and M. Golzar, "Theoretical and Visual Study on Bubble Dynamics in Foam Injection Molding" *Journal of Polym. Eng. Sci.*, **Vol. 50**, Issue 3, pp. 561-569 (2010)
- J.31) M. Mahmoodi, A. H. Behraves, S. A. Mohammad Rezavand and A. Pashaei, "Visualization of Bubble Dynamics in Foam Injection Molding" *Journal of Applied Polym. Sci.*, **Vol. 116**, Issue 6, pp. 3346-3355 (2010).
- J.30) A. H. Behraves, C.B. Park "Formation and Characterization of Polyethylene Blends For AUTOclave-based Expanded-Bead Foams" *Journal of Polym. Eng. Sci.*, **Vol. 50**, pp. 1161-1167 (2010).
- J.29) S.M Rezavand, A.H. Behraves, P. Shahi, "Experimental Study on Microstructural, Surface Hardness and Flexural Strength of Injection Molded Microcellular Foamed Parts" *Cellular Polymers*, **Vol. 28**, No. 6, pp. 363-386 (2009).
- J.28) M. Nazari Marvian, A.H. Behraves, M. Mahmoodi, and M. Golzar, "Extrusion Foam Coating of Coaxial Cables using Butane as Physical Blowing Agent" *Cellular Polymers*, **Vol.28**, No. 5, pp. 303-323 (2009).
- J.27) M E. Soury, A.H. Behraves, E. Rouhani Esfahani and A. Zolfaghari, "Design, Optimization and Manufacture of Wood-Plastic Composite Pallet" *Journal of Materials and Design*, **Vol. 30**, issue 10, pp. 4183–4191 (2009).
- J.26) E. Shakouri, A. H. Behraves, A. Zolfaghari, M. Golzar "Effect of Die Pressure on Mechanical Properties of Wood-Plastic Composite in Extrusion Process", *Journal of Thermoplastic Composite Materials*, **Vol. 22**, pp. 605 - 616 (2009).
- J.25) A. Zolfaghari, A.H. Behraves, E. Shakouri, E. Soury "An Innovative Method on Die Design and Evaluation of Flow Balance for Thermoplastics Extrusion Profiles" *Journal of Polym. Eng. Sci.*, **Vol.49**, Issue 9, pp. 1793-1799 (2009).

- J.24) A. Ahmadzai and A.H. Behraves, "An Experimental Investigation on Water Penetration in the Process of Water Assisted Injection Molding of Polypropylene" *Journal of Polimery*, **Vol. 54**, No. 7-8, p. 564 (2009).
- J.23) N. Jafarian Jam and A.H. Behraves, "Challenge to the Production of Fine Wood-Plastic Injection Molded Composite", *Journal of Reinforced Plastics and Composites*, **Vol. 28**, pp. 73 - 82 (2009)
- J.22) T. Azdast and A.H. Behraves, "An Analytical Study on the In-Mold Constrained Shrinkage of Injection Molded Plastic Parts" *Journal of Polymer-Plastics Technology and Engineering*, **Vol. 47**, issue 12, pp. 1265-1272 (2008).
- J.21) M. Nazari Marvian, A.H. Behraves and M. Golzar, "Extrusion Foam Coating of Coaxial Cables using Chemical Blowing Agent" *Cellular Polymers*, **Vol. 27**, No. 1, (2008).
- J.20) E. Soury, A.H. Behraves, H. Ghasemi and A. Zolfaghari, "Design and Manufacture of and Extrusion Die for Wood Plastic Composite," *Journal of Reinforced Plastics and Composites*, **Vol. 28**, pp. 1433 – 1439 (2009).
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- Akhoundi, B., Behraves, A. H., Bagheri Saed, A., "Calculation of maximum print speed in manufacturing continuous fiber reinforced thermoplastic composite by FDM 3D printer," The First National Conference and the Second Industrial Exhibition on Additive Manufacturing , Iran 3D Show, Tehran, Iran, 2018.
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- S.M Rezavand, A.H. Behraves, P. Shahi, Thermal Conductivity of Microcellular Thermoplastic Injection Molded Parts, *Polymer Processing Society, 26th Regional Meeting*, Istanbul, Turkey, (2010)
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PROFESSIONAL ASSOCIATION, ACTIVITIES, AND SERVICES

**Professional Engineering of Ontario, P.Eng.
CANADA**

Licensed, Member

Associations:

Society of Plastic Engineer (SPE)

Member

Iran Polymer Society

Member

Iran Society of Manufacturing Engineering (ISME)

Founder, Member

Non Destructive Testing Association

Founder, Member

Committees:

12th International Mechanical Engineering
Conference, Tehran, Iran, 2004.

Director of
Provisions Committee

First International Conference of Manufacturing
and Production Engineering of Iran, Tehran, 2005

Manager of Scientific Committee

Document of Future Perspective of Additive
Manufacturing in Iran, Office of Vice-Chancellor
of Science and Technology, 2017

Director of Scientific Committee

Iran 3D Show, First National Conference of
Additive Manufacturing, Tehran, Iran, 2018

Co-Chair

12th International Mechanical Engineering
Conference, Tehran, Iran, 2004.

Manager of
Provisions Committee